

**STUDIES IN THE GENERA OF THE *DIOSMEAE* (RUTACEAE): 3.
EUCHAETIS ELSIEAE WILLIAMS SP. NOV.**

ION WILLIAMS

(*Compton Herbarium, Kirstenbosch*)

ABSTRACT

A new species of *Euchaetis* from the high mountains of the Ceres and Worcester Divisions is described.

UITTREKSEL

STUDIES VAN DIE GENERA VAN *DIOSMEAE* (RUTACEAE). 3. *EUCHAETIS ELSIEAE* WILLIAMS SP. NOV.

Een nuwe *Euchaetis* soort vanaf die hoë berge van die afdelinge van Ceres en Worcester is beskryf.

DESCRIPTION

Euchaetis elsieae Williams sp. nov. propria propter folia linear-elliptica obtusa, ad apice crassiusculis, intus plana, extus rotunda, flores pleurumque binatim.

Frutex ad 1,5 m, diffusa, erecta, ad basim monocaulis. *Cortex* aspera, fusca, cicatrices foliorum carens. *Ramuli* erecti, graciles, glabri, brevi, rubescenti. *Folia* variabilia, 2–9 mm longa, 1,1–1,7 mm lata, linear-elliptica, vel elliptica, obtusa, ad apice crassiusculis, marginibus hyalinis angustis crassis glabris vel minute scabris, sessilia, glabra, erecta, sparsa, conferta vel distans. *Flores* terminales, pleurumque binatim. *Bractea* 2,5 mm longa, 1 mm lata, ciliolata. *Bracteolae* duae, 2,5 mm longae, 1 mm latae, lanceolatae, ciliolatae. *Sepala* quinque, 3 mm longa, deltata, acuta, ciliolata. *Petala* quinque, 4,8 mm longa, 1,4 mm lata, oblanceolata, obtusa, transverse barbata, unguibus sparsim ciliatis. *Staminodia* quinque, vestigiala. *Fila* quinque, glabra, post anthesin 1,3 mm longa. *Antherae* quinque, ante anthesin 0,9 mm longae, 0,7 mm latae, vinosae, apicibus minute glandulosi. *Pollen* 42 μ longum, 22 μ diam., oblongum. *Discus* 5-sinuatus, ovarium excedens. *Stigma* capitellatum. *Stylus* glaber, 1 mm longus. *Ovarium* 5-carpellatum, 0,8 mm diam., glabrum. *Fructus* 5-carpellatus, 6,5 mm longus, glaber, cornibus perbrevis. *Semen* 4,3 mm longum, 2 mm latum, piceum, nitens.

Type: CAPE–3219 (Wupperthal). (—CB) on a ridge S.E. of Bloukop, Cold Bokkeveld, 4 400–4 600', Ceres Division, *Williams 1817* (NBG, holotype; PRE, STE, K, MO, M, S, BOL, C, isotypes).

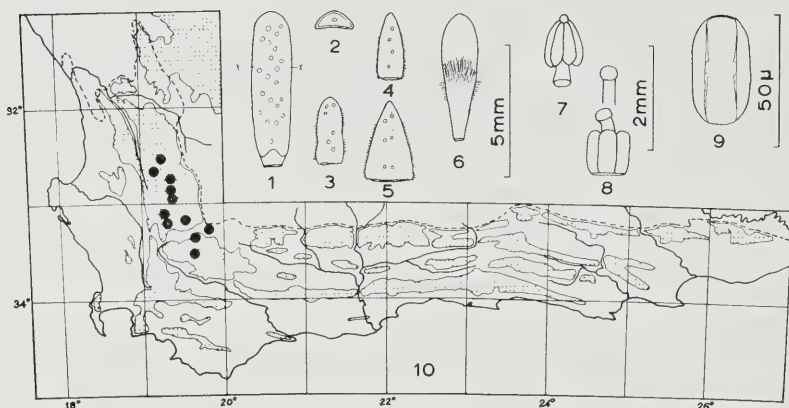


FIG. 1.

Euchaetis elsiaeae: 1, Leaf; 2, Section of leaf; 3, Bract; 4, Bracteole; 5, Calyx lobe; 6, Petal; 7, Anther; 8, Gynoecium; 9, Pollen; 10, Distribution.

This species was collected on the Matroosberg by A. Bolus and R. Marloth on the 1st January 1897 and again on the 19th January of the same year by Schlechter on the Gydoberg. Schlechter distributed many duplicates with the manuscript name of *Acmadenia macrostylidioides* but apparently never published a description. It was not again recorded until January 1940 when Miss Elsie Esterhuysen, in honour of whom this species is named, made two collections on the Matroosberg near Valschgatkloof. Thereafter she made many well documented gatherings from the high mountains of the Cold Bokkeveld and Hex River areas.

Shrubs up to 1,5 m after more than 50 years, normally much less, branching from near the base. *Bark* fairly rough, greyish-brown, without leaf scars. *Branches* slender, erect, glabrous, ashy in colour, divaricate, becoming leafless. *Branchlets* slender, erect, short, glabrous, reddish, shining, either not much hidden by the leaves or densely foliate. *Leaves* vary considerably in size, 2–9 mm long, 1,1–1,7 mm broad, linear-elliptic or elliptic, obtuse, thickened towards the apex, hyaline margins narrow, thick and smooth or scabrid, glabrous, sessile, adaxial surface flat becoming concave when dried, abaxial surface convex and gland dotted, adpressed or spreading-erect, distant or crowded, scattered. *Inflorescence* terminal, usually in pairs. *Bract* one to each flower, 2,5 mm long, 1 mm broad, oblong, obtuse, thickened at the apex, glabrous, gland dotted, ciliolate. *Bracteoles* two, 2,4 mm long, 1 mm broad, lanceolate, sub-acute, glabrous, gland dotted, ciliolate. *Calyx lobes* five, 3 mm long, 1,8 mm

broad, deltoid, acute, glabrous, gland dotted, ciliolate, adaxial surface very short-pubescent below. *Petals* five, 4,8 mm long, 1,4 mm broad, oblanceolate, obtuse. *Limb* white, glabrous, recurved. *Claw* narrowing to the base, transversely bearded and somewhat ciliate above. *Staminodes* five, 0,15 mm diam., each a minute vestigial translucent spherical gland. *Filaments* five, becoming 1,3 mm long, acicular, glabrous, curving inwards. *Anthers* five, before anthesis 0,9 mm long, 0,7 mm broad below, wine red, apical gland 0,2 mm diam. *Pollen* oblong, 42μ long, 22μ diam. *Disc* 5-sinuate, exceeds the ovary, exudes nectar. *Stigma* 0,25 mm diam., globose, green, capitellate. *Style* becoming 1 mm long, terete, glabrous. *Ovary* 5-chambered, 0,8 mm diam., glabrous, apices hemispherical. *Fruit* (from *Esterhuysen* 27907) 5-carpellate, 6,5 mm long, glabrous, gland dotted. *Horn* 1 mm long, with a spherical gland clasped at the apex. *Seed* (from *Esterhuysen* 27907) 4,3 mm long, 2 mm broad, black, shining.

SPECIMENS EXAMINED

CAPE—3219 (Wupperthal): (–CA) Southern Cederbergen, Hondverbrand Ridge, vlakke on E.spur, 21/4/1946 *Esterhuysen* 12750 (BOL, NBG); Clanwilliam, Elandskloof Mountains, 4 000', 25/9/1936 *Compton* 6557 (NBG); (–CB) Cold Bokkeveld, Bloukop, rocky plateau and E. slopes, 4 500–5 500', 1/10/1958 *Esterhuysen* 27907 (BOL); Cold Bokkeveld, Bloukop, S.E. ridge, 4 400–4 600', 8/6/1973 *Williams* 1817 (K, M, MO, NBG, PRÉ, BOL, C, S, STE); (–CD) Bokkeveld Sneekop, rocky W. & S.W. slopes, 5 000–6 000', 31/3/1963 *Esterhuysen* 30107 (BOL); (–CD) Skurweberg Peak, S. of Bokkeveld Sneekop, shaly and rocky S. slopes, 4 000–5 000', 1/1/1962 *Esterhuysen* 29446 (BOL). –3319 (Worcester): (–AB) Cold Bokkeveld, Gydoberg, 6 000', 19/1/1897 *Schlechter* 10051 (BOL, BR, MEL, PRÉ), 10/11/1946 *Walgate* 1116 (BOL); (–BA) Baviaansberg, N. of Karoopoort, rocky slopes, 5 000–6 000', 4/11/1962 *Esterhuysen* 29802 (BOL), 12/1/1956 *Stokoe* s.n. (SAM 70000); (–BD) Bonteberg, Eikenboschoek, S. slopes, 3 500–4 000', 3/11/1940 *Esterhuysen* 3671 (BOL, NBG, SAM), 3/11/1940 *Compton* 9955 (NBG); (–BC) rocky crest of ridge N. of Matroosberg and Sonklip, 3 000', 6/8/1951 *Esterhuysen* 18725 (BOL); Matroosberg, 5 500–6 500', –/1/1897 *Marloth* 2361 (PRÉ), 1/1/1897 *A. Bolus* s.n. (BOL 6361), 2/1/1897 *A. Bolus* s.n. (BOL Guthrie 4394); Matroosberg, rocky shale band above "Coat of Arms", 1/6/1958 *Esterhuysen* 27787 (BOL); Valsch Gat Kloof 4 000', –/1/1940 *Esterhuysen* 1544 (BOL); Roodeberg, 6 000', –/1/1941 *Stokoe* s.n. (BOL, SAM 58810), rocky W. slopes, 5 000–6 000', 27/12/1952 *Esterhuysen* 20909 (BOL), 10/10/1962 *Esterhuysen* 29720a (BOL); N. slopes above Valsch Gat Kloof, 5 000', –/1/1940 *Esterhuysen* 1499 (BOL); Conical Peak, Roodeberg slopes, 6 000', –/12/1940 *Stokoe* 7668 (BOL, SAM); near Peak C., 6 000', 24/1/1941 *Stokoe* 8177 (BOL); (–AB) Cold Bokkeveld, Rocklands Peak, rock outcrop on shale band, 5 000', 5/6/1955 *Esterhuysen*

24327 (BOL); (-DA) Kwadouws Mountains above Orchard, amongst rocks on plateau 3 000–4 000', 26/7/1944 *Esterhuysen 10317* (BOL, NBG SAM), 23/11/1944 *Esterhuysen 10926* (BOL); Kwadouwsberg, Witvlakte, 4 600', 16/5/1973 *Williams 1800* (NBG).

DISTRIBUTION, BIOLOGY AND VARIATION

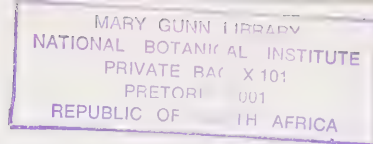
Euchaetis elsiae is a species confined to high mountains in the Cold Bokkeveld and Hex River areas, a distance of 105 km from North to South. It is found at altitudes of from 1 000 to 2 000 metres (3 000–6 500') above sea level on dry stony ground amongst rocks of the Table Mountain Sandstone geological series. It would appear to be in bloom nearly the whole year round in one locality or another. The only months when no collections have been made are February, March and May. However, this does not mean that this plant is not then in bloom. The type collection was made in April and fruiting material has been collected in October and November. Pollination is most probably effected by small insects. The style, which at first is very short and slightly deflected to one side, eventually lengthens, after the anthers have discharged their pollen, becomes erect and carries the stigma up into the throat of the flower just beneath the bearded petals. In this position it is most likely to receive pollen brushed off from any insect attempting to reach the nectar which is secreted by the disc surrounding the ovary at the base of the petals.

The leaves of *E. elsiae* when crushed have a scent of menthol or turpentine. The stems in cross-section show distinct annual rings. A section from the stem of a plant in the population from which the type material was collected, showed 50 rings. These plants were up to 1,5 m tall, and were in an area that obviously had not been burnt for a very long time. Young plants in the material *Esterhuysen 1499* showed 3 annual rings.

Variation in *Euchaetis elsiae* is most noticeable in the size and spacing of the leaves. Many plants appear to produce very short shoots with minute leaves closely overlapping (*Esterhuysen 3671*). Towards the north, however, populations have somewhat larger leaves which are more spread out. These variations may, to some extent, be due to climatic conditions. Unfortunately these plants have never been brought into cultivation and so comparisons between populations have never been made. Branches may be glabrous or somewhat pubescent and leaves may be glabrous or slightly scabrid with margins that may vary from smooth to scabrid.

DISCUSSION

This plant is placed in the genus *Euchaetis* Bartl. & Wendl. because it possesses the following characters:— 1. *petals* transversely bearded in the vicinity of the throat of the flower; 2. *staminodes* vestigial; 3. *anther* bears a minute apical



gland; 4. *disc* exceeds the ovary; 5. *stigma* capitate; 6. *style* short; 7. *filaments* and *style* glabrous; 8. *ovary* 5-carpellate; 9. *fruit* short horned.

Euchaetis elsieae is recognised as distinct on account of its having linear-elliptic obtuse leaves, somewhat thickened at the apex, flat on the adaxial surface (concave when dried) and rounded on the outside, with the flowers borne usually in pairs. It differs from *Euchaetis glomerata* Bart & Wendl. *Euchaetis elata* Eckl. & Zeyh., *Euchaetis linearis* Sond. and *Euchaetis flexilis* Eckl. & Zeyh., all of which have flowers aggregated into multiflorous heads and leaves varying from linear to lanceolate. It is nearest to *E. flexilis* but differs in that the apex of the leaves in *E. elsieae* is thickened whereas in *E. flexilis* it is sacculate.